REMARKS

Claims 1-5, 7-15, 17-20, 25 and 26 are pending in the present application. Claims 6, 16 and 21-24 are canceled; and claims 1, 8, 11-13, 15, 18, 25 and 26 are amended. Reconsideration of the claims is respectfully requested.

I. 35 U.S.C. § 102, Alleged Anticipation of Claims 1-2 and 11-12

The Office Action rejects claims 1-2 and 11-12 under 35 U.S.C. § 102(e) as being allegedly anticipated by Chung et al. (US Patent No. 6,470,389). This rejection is respectfully traversed. Claims 1 and 11 are amended to include the features formerly presented in claims 6 and 16. Thus, the rejection under 35 U.S.C. § 102(e) no longer applies due to claims 6 and 16 being rejected under 35 U.S.C. § 103(a).

II. 35 U.S.C. § 103, Alleged Obviousness

Claims 1, 11 and 25 are amended to include features previously presented in claims 6 and 16. The Office Action rejects claims 6 and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Chung et al. (U.S. Patent No. 6,470,389) in view of Muller et al. (U.S. Patent No. 6,606,301) and in further view of Khue et al. (U.S. Patent No. 6,470,008) and still in further view of Johnson et al. (U.S. Patent No. 6,591,250). This rejection is respectfully traversed.

Regarding claim 6, the Office Action states:

> Chung et al. teaches calculating a second value in response to a first server being non-functional; and routing the request to a second server based on the second value **(Chung et al. – Col. 7 lines 9-12 – When a server is down, the dispatch will rehash the IP address, i.e. session identifier, and route this and all subsequent packets to the newly mapped server to prevent any lost data packets caused by the failure).** Chung et al. fails to teach the second value is calculated from the first value.
>
> Johnson et al., however, teaches a method for performing a hash function twice using the first hashed value in the second hash function, i.e. H (K, H (K, M)) **(Johnson et al. Col. 13 lines 30 – 32).**
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chung et al. by implementing the two-pass hash function as taught in Johnson et al. into the dispatching algorithm of Chung et al. in order to increase the speed with which the dispatcher re-routes the requests by using the same

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> algorithm already in place with different values and also to increase the encryption level of session information which in turn, provides greater security all-around.
> Office Action dated September 15, 2003, pages 8-9.

Claim 1, which is representative of claims 11 and 25 with regard to similarly recited subject matter, recites:

> 1. A method in a data processing system for managing a request including a session identification, comprising:
> calculating a first value based on the session identification; and
> routing the request to a first server based on the first value;
> determining whether the first server is functional;
> *calculating a second value based on the first value in response to the first server being non-functional*; and
> routing the request to a second server based on the second value.
> *(emphasis added)*

Neither Chung, Muller, Khue nor Johnson, either alone or in combination, teach or suggest "calculating a second value based on the first value in response to the first server being non-functional." The Office Action alleges that Johnson et al. teaches this feature. Applicants respectfully disagree.

In the text cited by the Examiner, Johnson is directed to a "MAC construction that performs a hash function twice." As explained by Johnson, the reason for this is because performing a hash function twice is "more secure than a single hash function." A message authentication code (MAC) is an encryption algorithm that "is created by prepending the session key to the message to be transmitted, performing a cryptographic hash algorithm and message into a MAC, and then transmitting the message and MAC to the other party without sending the session key." Johnson is concerned with data security rather than data routing. Thus, Johnson does not teach or suggest calculating a second value based on the first value in response to the first server being non-functional.

Furthermore, Chung does not teach or suggest "calculating a second value based on the first value." To the contrary, Chung teaches calculating a second value based on the session identification. The following text describes the method of Chung for recalculating subsequent values:

> When a server in the cluster fails, the subset of clients assigned to that server will not be able to connect to it. The present invention addresses this potential problem by dynamically modifying the dispatching function

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> upon detection of a server failure. If the hash value of a given client IP address maps to a failed server, the client IP address is rehashed to map to a non-failed server, and the connections of the remaining clients are not affected by the failure. (Column 7, lines 5-12)

Thus, when a non-functional server is detected, a new value is generated by rehashing the IP address. The hash function is dynamically modified when a server fails. The IP address is then rehashed with this modified hash function to generate a new value.

In contradistinction, if a non-functional server is detected in the system of the present invention, a new value is generated by performing the same hash function on the previous value. In other words, subsequent values are generated from iterations of the same hash function on corresponding previous values. However, in Chung, the second value calculated is independent of the first, which is not equivalent to "calculating a second hash value based on the first hash value" as alleged in the Office Action.

Furthermore, there is no teaching or suggestion in Chung that using the first value to calculate a second value would be beneficial to increase "the speed with which the dispatcher re-routes the requests by using the same algorithm already in place with different values and also to increase the encryption level of session information which in turn, provides greater security all-around," as recited in the Office Action.

Moreover, there is no teaching or suggestion in either Chung or Johnson regarding any problem for which the other reference is a solution. In fact, it would not be obvious to one of ordinary skill in the art to combine the teachings of Chung with those of Johnson. Johnson proposes using a hash function for the purpose of encryption. Hash functions are commonly used for the purpose of encryption. Further, Johnson teaches that performing hash functions multiple times increases security. The mere fact that Johnson suggests performing a hash function for the purpose of encryption does not provide a motivation for combining Chung and Johnson. Further, there is no teaching or suggestion in either Muller or Khue that will remedy the deficiencies of Chung and Johnson.

In view of the above, Applicants respectfully submit that Chung, Muller, Khue and Johnson, taken alone or in combination, fails to teach or suggest each and every feature of claims 1, 11 and 25. Therefore, claims 1, 11 and 25 are not rendered obvious by the proposed combination of Chung, Muller, Khue and Johnson. At least by virtue of their dependency on claims 1, 11 and 25 the proposed combination of Chung, Muller,

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Khue and Johnson, taken alone or in combination, fails to teach or suggest each and every feature of dependent claims 2-5, 7, 12-15 and 17. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-5, 7, 11-15, 17 and 25 under 35 U.S.C. § 103(a)

With regard to claims 3 and 13, the Office Action alleges that it would have been obvious to a person of ordinary skill in the art to combine the teachings of Chung and Muller to perform a modulus function on the resulting value from the hash function "in order to create a fixed size, integer value which maps to a particular server in order to be used for dispatching" as recited in the Office Action. Applicants disagree and furthermore request the Examiner to point out specifically where Chung, or any of the other four applied references, suggests that performing a modulus function on the resulting value generated from a hash function would be a benefit. Nowhere does Chung suggest "performing a modulus function on the first value to form a first integer." A hash function by nature generates a fixed size number. A modulus function will generate an integer value as well as a smaller value. Chung does not suggest that using a smaller value or an integer for that matter is necessary or beneficial.

Moreover, Muller is directed to a high performance network interface. Muller discloses a system "for randomly discarding a packet if the rate of packet transfers cannot keep pace with the rate of packet arrivals at the queue."(abstract) Nowhere in this reference does Muller suggest that the network interface may be used to route client requests to a particular server based on that server being functional, such as in the system of Chung. Thus it would not be obvious to one of ordinary skill to combine these references. This could only occur if one first had benefit of Applicants' disclosure and made the modifications in view of the information received through Applicants' disclosure, thereby constituting impermissible hindsight reconstruction using Applicants' own disclosure as a guide.

Furthermore, there is no teaching or suggestion in any of the references regarding any problem for which the other reference is a solution. That is, there is no teaching or suggestion in either reference to make the alleged combination set forth in the Office Action. A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the

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combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995); *In re Bond*, 910 F.2d 831, 834, 15 U.S.P.Q.2d 1566, 1568 (Fed. Cir. 1990).

With regard to claim 8, the Office Action states:

> Chung et al. in view of Muller et al., and further in view of Khuc teach the invention substantially as claimed, a method for routing a request to one of a number of servers, comprising: receiving a request including a session identification **(Chung et al.—Col. 7 lines 64-66 – The request packet contains the client IP address (session identification)**; performing a hash function on the session identification to form a hash value **(Chung et al.—Col. 4 lines 37-39 and Col. 7 lines 64-66 – An appropriate hash function is used on the client IP address, also known as, the session identifier)**; performing a modulus function on the hash value to form an integer **(Muller et al.—Col 49 lines 52-53 – After hashing, a modulus function is performed. This, by the function's nature, produces an integer value)**; and routing the request to one of the number of servers based on the integer **(Khuc—Figure 5 & Col. 9 line 10 – The first (indexing) column comprised of integer values in the look-up table is used to select the IP address of a particular server that should service the request).**
> Office Action dated September 15, 2003, page 6.

Claim 8, which is representative of claims 18 and 26 with regard to similarly recited subject matter, reads as follows:

> 8. A method in a data processing system for routing a request to one of a number of servers, comprising:
> receiving a request including a session identification;
> performing a hash function on the session identification to form a first hash value;
> performing a modulus function on the first hash value to form a first integer; and
> routing the request to a first server based on the first integer in response to the first server being functional;
> *performing a hash function on the first hash value to form a second hash value in response to the first server being non-functional;*
> *performing a modulus function on the second hash value to form a second integer*; and
> routing the request to a second server based on the second integer.*(emphasis added)*

Applicants respectfully submit that any alleged combination of Chung, Muller and Khuc does not teach or suggest performing a hash function on the first hash value to form a second hash value in response to the first server being non functional. Applicants

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direct the Examiner to the arguments set forth above with regard to claim 1. Chung discloses performing a hash function on an IP address to generate both a first and a second hash value. Chung does not teach performing the same hash function on the first hash value in response to the first server being non-functional. Rather, Chung modifies the hash function and rehashes the IP address.

Additionally, the Office Action states that Johnson teaches the feature of performing a hash function on the first hash value. For the same reasons as set forth above, neither Chung nor Johnson, either taken alone or in any combination, teaches this feature. Specifically, Johnson is directed to a method for encryption for security purposes. Nowhere in the Chung reference is it taught or suggested to incorporate encryption methods.

Moreover, for the same reasons set forth above, it would not be obvious to combine Chung with Muller for the purpose of performing a modulus function on a hash value. A hash function by nature generates a fixed size number. A modulus function will generate an integer value as well as a smaller value. Chung does not suggest that using a smaller value or an integer for that matter is necessary or beneficial.

Furthermore, even if it was somehow found to be obvious to combine Chung and Muller in such a way as alleged by the Examiner, the combination would still not result in the features recited in claim 8. Particularly, Chung does not teach or suggest performing a hash function on the first hash value to form a second hash value. Therefore, Chung certainly does not teach or suggest performing a modulus function on the second hash value to form a second integer.

Additionally, Khuc is directed toward a method for routing telephone communications over the internet as recited in the abstract:

> A routing system provides internet service providers with internet routing support for internet communications. The routing system receives a query from an internet service provider and responds with the appropriate internet address to transport communications over the internet. The internet address may direct the communications to an internet gateway or to the routing system itself. The routing system can forward the communications to a destination over the public telephone system. The routing system may process a telephone number to identify the proper internet address for the communication.

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Thus, it would not be obvious to one of ordinary skill in the art to combine Khue's teaching of an internet telephone communications system with Chung's teaching of a system for hosting a network service on a cluster of servers using a single address image. Furthermore, Johnson, as formerly applied to claim 6 and 16, does not provide for the deficiencies of Chung, Muller and Khue.

In view of the above, Applicants submit Chung, Muller, and Johnson, taken alone or in combination, fails to teach or suggest each and every feature of independent claims 8, 18 and 26 as required under 35 U.S.C. § 103(a). At least by virtue of their dependency on claims 8, 18 and 26, neither Chung, Muller, Khue nor Johnson, either alone or in combination, teaches or suggests each and every feature of dependent claims 9, 10, 19 and 20. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 8-10, 18-20 and 26 under 35 U.S.C. § 103(a).

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III. Conclusion

It is respectfully urged that the subject application is patentable over Chung, Muller, Khuc, Johnson, Scott and Serbenis and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

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